

## **REMARKS/ARGUMENTS**

Reexamination and reconsideration of this Application, withdrawal of the rejections, and formal notification of the allowability of all claims as now presented are earnestly solicited in light of the attached evidence and remarks that follow.

### **I. Claim Amendments**

Claims 1-25, 27-38, and 40-44 are pending in the application. Claims 26 and 39 have been cancelled without prejudice or disclaimer. Independent claims 1 and 38 have been amended to recite that the two sections of fibrous tow filter material are plasticized, and further to recite that each section of filter material consists of filaments having a certain weight per unit length, and the section of filter material closest to the tobacco rod has a lower weight per unit length than the filter material positioned distal from the tobacco rod. The added subject matter is clearly described throughout the specification, such as on page 25. In addition, dependent claims 27, 40 and 41 have been amended to change dependency. Claims 22-25 and 29-37 are presently withdrawn from consideration. Finally, new claim 44 has been added, which recites that the ventilation holes presented in claim 43 are positioned between the midpoint of the adsorbent-containing portion of the compartment and the end of the compartment proximal to the tobacco rod. Description of this subject matter can found in the paragraph bridging pages 17-18. Applicants respectfully submit that no new matters introduced by these amendments.

### **II. Interview Summary**

Applicants appreciate the time and attention of the Examiner during a telephonic interview on June 25, 2009. During the interview, the undersigned presented draft claim amendments essentially identical to those presented herein. In addition, the undersigned opined that the cited art failed to teach or suggest several aspects of the claimed invention, including a filter wherein a tobacco-end filter segment consists of filaments having a lower weight per unit length than the filaments of a mouth-end filter segment. In addition, the undersigned argued that the location of the ventilation holes set in new claim 44 is simply not taught or suggested in the

art. The Examiner indicated that these arguments would be considered upon filing an office action response.

### **III. Co-pending Application**

Applicants wish to direct the Examiner's attention to a co-pending patent application assigned to the same assignee as the present application. The co-pending application, Appl. Serial No. 10/674,908, also claims a filter embodiment having a divided internal compartment. The Examiner's attention is specifically directed to the rejections presented in the co-pending case and the art recited therein. Some of the art cited during prosecution of the co-pending application is already of record. An Information Disclosure Statement filed concurrently with this amendment places the remaining references in the record. The Examiner will note that the following references have been cited against the claims of the co-pending case during its prosecution: U.S. Patent Nos. 4,564,030; 5,629,525; 6,814,786, and U.S. Publication Nos. 2002/0148478 and 2004/02265692. In addition, a literature reference authored by Keith et al. has been cited.

### **IV. Section 112 Claim Rejections**

Claims 1-21, 26-28, and 38-43 stand rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. The Examiner alleges that reference to uniformity of construction and particulate removal efficiency, as well as reference to uniform and continuous properties of the barrier, are not supported in the specification. Applicants respectfully disagree regarding the support for these recitations. However, it is not believed that these amendments are necessary for patentability. Accordingly, the recitations objected to by the Examiner have been removed and Applicants respectfully request reconsideration of withdrawal of this rejection.

Additionally, the Examiner rejects claim 5 as being indefinite, arguing that the terms "weak" and "strong" render the claim indefinite. Applicants respectfully submit that the use of the terms weak and strong in the context of anion exchange resins is well understood in the art and has acquired a defined meaning. However, it is not believed that the recitation of strong or

weak base anion exchange resins is necessary. Accordingly, in order to expedite prosecution, claim 5 has been amended to remove these terms and Applicants respectfully request reconsideration and withdrawal of this rejection.

**V. Prior Art Rejections**

Claims 1-17, 19, 20, 21, 26-28 and 38-42 stand rejected as obvious over U.S. Patent No. 3,251,365 to Keith II in view of U.S. Patent No. 2,815,760 to Schreus et al., U.S. Patent No. 5,979,459 to Schneider, and U.S. Patent No. 3,603,319 to Badgett et al. In addition, claim 4 stands rejected over the above-noted combination of references further in view of an encyclopedia reference. Still further, claim 18 stands rejected over the above-noted combination of references further in view of U.S. Patent No. 5,714,126 to Frund. Finally, claim 43 stands rejected over the above-noted combination of references, further in view of US 2002/0166563 to Jupe et al.

In all rejections, the Examiner admits that the Keith and Schreus references fail to describe the particulate removal efficiency of various filter segments. Instead, the Examiner relies upon the Schneider and Badgett references as providing disclosure relevant to this recitation in the claims. Specifically, the Examiner relies upon the Schneider patent as disclosing various filter embodiments comprising a coaxial segment. The Examiner relies upon the Badgett patent as disclosing a filter in an example that allegedly includes a lower denier per filament in one segment as opposed to a second segment. Applicants respectfully traverse these rejections.

As noted above, all claims have been amended to recite that the section of filter material proximal to the tobacco rod has a greater particulate removal efficiency than a section of filter material distal from the tobacco rod by virtue of consisting of filaments having a lower weight per unit length. As supported by the examples, the inventors have discovered that using a tobacco-end filter segment having greater particulate removal efficiency can enhance the adsorption of certain volatile species in mainstream smoke by a downstream absorbent material. For example, the Examiner's attention is directed to the comparison between the cigarette of Example 1 and Example 2 in specification. In Example 2, the cigarette comprises a filter element having a tobacco-end filter segment having a greater particulate removal efficiency than

the mouth-end segment. The resulting cigarette provided a greater reduction in certain volatile mainstream smoke components as compared to the cigarette of Example 1, which places the segment with the higher particulate removal efficiency at the mouth-end. These surprising results are not described in the cited art. Accordingly, Applicants submit that, even if a *prima facie* obviousness rejection can be made (which Applicants do not admit), such a rejection should be overcome based on these surprising experimental results.

Regardless of the presence of surprising results, Applicants believe that the cited art is insufficient to establish obviousness of the claimed invention. The Examiner relies upon the Schneider reference as disclosing a filter comprising a coaxial segment, a middle segment (allegedly element 12 in Fig. 1) and a mouth-end segment with low retention (allegedly element 11 in Fig. 1). Applicants respectfully traverse this description of the teachings of the Schneider patent. First, it is noted that element 11 in Schneider patent is not a mouth-end filter segment. Instead, the patent describes element 11 as the tobacco rod.

It is respectfully submitted that the relevance of the Schneider patent, if any, is best viewed by reference to Table 1 at the bottom of Column 2. This table provides the various filter configurations that the Schneider patent suggests should be used. Every embodiment includes a coaxial filter, either alone or in combination with other filter segments. In particular, it is noted that type 3 in table 1 presents the closest filter arrangement to the pending claims and to the plug-space-plug teachings of other references cited by the Examiner. As noted in the table, filter type 3 includes a “standard” filter on the tobacco side, a chamber comprising filtering material in the middle, and a mouth segment comprising the coaxial filter. Thus, it is respectfully noted that every embodiment suggested by Schneider includes a coaxial filter, including the embodiment most similar to the present claims.

It is respectfully submitted that the use of a coaxial filter as required in the Schneider patent is inconsistent with the clear language of all claims of record. Specifically, it is noted that all claims have been amended to recite that the two sections of filter material consist of filaments having a certain weight per unit length. In other words, the entirety of each section of filter material consists of a specific type of filament. This language clearly indicates uniformity of construction of the filter section in terms of the filaments.

In contrast, the entire Schneider patent is directed to various filter embodiments that include a coaxial filter segment, which is inherently a non-uniform filter segment that includes a core and a jacket, each comprising filaments having different weights per unit length. Indeed, the express purpose in Schneider is to provide a filter cigarette that provides more uniform smoke yield regardless of whether ventilation holes in the filter are open or closed. Greater uniformity in smoke yield regardless of ventilation is achieved in Schneider through use of a coaxial filter. Any teaching of relevance provided by Schneider must be viewed as including the use of a coaxial filter segment in some capacity. The use of such a filter segment is clearly inconsistent with the claim language as presented herein. For at least this reason, Applicants respectfully submit that any rejection relying upon the Schneider patent would necessarily fail to lead to the claimed invention.

Applicants similarly believe that the teachings of the Badgett patent fail to teach or suggest the subject matter of the claimed invention. First, it is noted that the general teachings of the Badgett patent do not appear to suggest any particular filter arrangement with respect to particulate removal efficiency. Other than the Examiner's reference to a portion of Example 10 of the patent, there is no other teaching regarding the use of segments in a filter that have different filament weights per unit length. As discussed in the interview, the undersigned does not believe that the teachings of Example 10 are clear enough to provide any guidance with respect to the claimed invention. While it is true that the example refers to two fibrous filter materials having different dpf, the manner in which the filter is manufactured does not appear to result in a filter having any of the qualities set forth in the claimed invention. In particular, it is noted that Example of 10 of Badgett suggest taking the lower denier per filament material, cutting it in half, and threading the material through a large empty tube. Although the starting material has a lower dpf than the other material mentioned in the example, the example also describes the ultimate filter segment made by cutting the material in half as "loosely compacted." This language suggests that the final product does not provide greater particulate removal efficiency in the filter section made using the lower dpf material. Indeed, it appears that the clear intent is to provide a "loosely compacted" section of filter material that provides very little particulate removal efficiency regardless of the dpf number. In any event, Applicants submit

that, at best, the teachings of Example 10 of Badgett are unclear and would not provide sufficient motivation to one of skill in the art to modify the teachings of the other cited references to arrive at the claimed invention. For this additional reason, Applicants respectfully request reconsideration withdrawal of all obviousness rejections.

Applicants also again note that the Jupe reference, which is relied upon by the Examiner in one of the rejections, teaches away from the claimed filter arrangement with respect to variance in particulate removal efficiencies of the filter segments. In particular, the Examiner's attention is directed to paragraph 40 wherein the Jupe reference suggests that all the various filter components, including the tobacco-end filter segment 18 and the mouth-end component 22, should provide low particulate efficiencies. Still further, the Examiner's attention is directed to Table I and paragraph 45 of Jupe, which describe a filter embodiment where the mouth-end filter component has a lower denier per filament than the tobacco-end component. Still further, the Examiner is directed to paragraph 47 in the cited Jupe reference, which specifically stresses that the tobacco-end component should have the lowest particulate efficiency. This is a direct teaching away from the claimed invention. It is respectfully submitted that such an express teaching away from the claimed filter arrangement presents strong evidence against the obviousness of the claims, particularly where the cited Schneider patent is clearly distinguishable from the claims and the teachings of the Badgett patent are unclear. This teaching away is particularly surprising in light of the enhancement of adsorbent performance associated with the claimed filter configuration that the inventors have demonstrated in the specification.

In addition, Applicants submit that there are certain dependent claims of record that are patentably distinct from the cited art for additional reasons. For example, new claim 43 recites the presence of ventilation holes positioned between the midpoint of the adsorbent-containing portion of the compartment and the end of the filter element proximal to the tobacco rod. It is believed that positioning the ventilation holes in this section of the filter element provides better adsorption performance. There is simply nothing in the cited art to teach or suggest such an arrangement.

The Examiner relies upon the Jupe publication as disclosing ventilation holes. Specifically, the Examiner relies upon a paragraph in the background section of this reference

that notes that it is typical to locate ventilation along a bed of adsorbent in a plug-space-plug filter element. However, there is no further guidance as to where to locate the ventilation holes relative to the bed of adsorbent material, and certainly nothing to suggest the location set forth in new claim 44. Still further, it is noted that the actual teachings in the detailed description portion of the Jupe reference suggests that the ventilation holes should be present downstream from a carbon bed in a cavity. The Examiner's attention is directed to both Figures 1 and 2, wherein the ventilation holes 24 are actually downstream from the carbon bed 20, which is inconsistent with recitations in claims 43 and 44. One of skill in the art reading the Jupe reference in its entirety would actually be motivated to locate ventilation holes downstream from any adsorbent-containing chamber and disinclined from practicing the subject matter of claims 43 and 44. For at least this further reason, Applicants respectfully submit that claim 44 is separately patentable over the cited art.

Respectfully submitted,

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ELECTRONICALLY FILED USING THE EFS-WEB ELECTRONIC FILING SYSTEM OF THE UNITED STATES PATENT &  
TRADEMARK OFFICE ON  
JULY 1, 2009.